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used. It is not perceived that a class has arisen which fits into neither, but is equally important, and, indeed, less easily replaced than either.

It is overlooked because it has not asserted itself. Now that this society has given a lead by settling its policy and position, the movement may be accelerated. It has decided not to join either employers or trade unions, but to occupy an independent and intermediate position, and, while protecting its own interests, to cooperate with both in promoting the advancement of British engineering industries. This decision is of great interest from several points of view. It will not please employers or trade unions, but we believe that it is sound and to the public advantage. An independent organization, powerful from the indispensable part in industry played by its members, and standing between employers and workmen, in intimate touch with both, may come to possess a decisive influence in holding the balance between them. The engineers, in particular, have a unique position which differentiates them from the clerical blackcoats, who do not come in contact with the manual workers. At the Engineering Conference held last July Mr. John Brodie, President of the Institution of Civil Engineers, referred to this in connection with industrial disputes, and suggested that the engineers, as a technical body, were peculiarly fitted by their knowledge of workmen and impartial standpoint for the investigation and judicial treatment of differences. This is a promising line of development.—*The London Times*.

#### SCIENTIFIC BOOKS

*History and Bibliography of Anatomic Illustration in its Relation to Anatomic Science and the Graphic Arts.* By LUDWIG CHOULANT. Translated and edited, with notes and a biography, by MORTIMER FRANK, B.S., M.D. With a biographical sketch of the translator and two additional sections by Fielding H. Garrison, M.D., and Edward C. Streeter, M.D. The University of Chicago Press, Chicago, Illinois. xxvii, 435 pages.

In 1852 Dr. Ludwig Choulant published his indispensable history of anatomical illustration. Although neither an anatomist nor artist, being a professor of medicine addicted to bibliography, he made both anatomy and art his debtor, even at the cost of some impairment of character. For, adoring the antique, he became the outspoken opponent of new doctrines in medicine, ridiculing the sound methods of physical examination, and was, in the words of his biographer, "the foe of progress." Although like all before him he deprecated book-wisdom and authority-worship in others, yet his own career shows the danger of these siren studies—of regarding, for example, the thirteenth the greatest of centuries, or of unwisely inquiring, "What is the cause that the former days were better than these?" However, Dr. Choulant does not extol the past in his impassionate historical record, and it is quite possible that his biographers, from whom we have quoted, have dealt with him unkindly.

In the preface he sets the limits of his work. It is not intended to be a history of anatomy, or of anatomists, or even of anatomical discovery, but merely of *anatomical illustration*, following two lines—that of scientific anatomy and that of artistic anatomy. The study is further restricted to the anatomy of man in its most obvious features. Many of the illustrations are of the human skeleton, and most of the others show the superficial muscles or general disposition of the viscera, so that the frontier of anatomy alone is entered. From Choulant's viewpoint, perhaps, Dr. Garrison writes that "anatomical illustration was neglected through the growth of histology, morphology, and embryology."

The author proceeds, in a historical introduction, to define three stages and seven periods of anatomical drawing. Although this chapter contains much interesting exposition, the proposed stages and periods are chiefly of academic interest. It is followed by a very brief account of ancient and mediæval illustrations, with a superb chromo-lithographic reproduction of miniatures from a manuscript of Galen's *Opera varia*. After this the anatomist-artists and artist-anatomists together are presented chrono-

logically, with terse comments and compact data on as much of their work as is relevant. This involves tireless research and great bibliographic resources, and is an instance of what we like to regard as typical German scholarship. The illustrations were supplied by a publisher, Rudolph Weigel, personally devoted to the graphic arts, who "came to love this enterprise." They are well executed woodcuts, copied from important and generally rare originals, and since the pages are usually foxed, the book itself, though not old, has the flavor of antiquity. That it would suffer from an artistic standpoint in an American edition would be expected, and such is indeed the case. The miniatures in color and the red-chalk drawing are replaced by gray half-tones, many more of which with their muddy backgrounds and occasional obscurity of essential details have been introduced. The woodcut facsimiles in Choulant appear as "process" line-drawings, since it was recognized that this would give better results than photographic copies from worn and library-stamped originals.

Dr. Mortimer Frank has made a very able translation, rendering into English not only the German text, but Latin, Italian and other quotations. He has expanded greatly the accounts of certain authors, increasing that of Mondino, for example, by seven pages; and owing to Sudhoff's researches he could supplement Choulant's brief treatment of early manuscript illustrations by a large and separate chapter, which becomes discursive and quite different from Choulant's work. It raises the question whether the Alexandrian school of anatomy produced anatomical drawings, now lost, which were the source of the crude figures found in Provençal, Persian and Thibetan manuscripts. These figures have in common, among other things, a sitting or straddling posture; all of them may have come, according to Cowdry's recent publication, from still earlier Chinese sources, but the drawings which he has found to substantiate this show little more of anatomy than a strange posture. It seems probable, however, that anatomical illustration had a long history before the renaissance, little of which may ever be known. The

mediaeval pictures show further that Jacobus Sylvius was not without some justification in making his great mistake, namely that because the physician must, as he said, view and handle the body, anatomical pictures would always be a hindrance "serving only to gratify the eyes of silly women."<sup>1</sup> Thus one very able anatomist lost a place in any history of anatomic art, but it seems unnecessarily severe to describe his pupil's achievements as "tremendous and limitless"; nor should the anatomist Marc' Antonio Della Torre, who employed Leonardo for making illustrations, be lost in the effulgence, when Leonardo "steps to a place of intolerant central glory."

Great anatomists who neither made pictures nor had them made for them, are rigidly debarred; whereas others of relatively slender attainments but given to pictorial illustration appear of magnified importance. None more so than Casserius, whose ornate drawings of the vocal organs of all creatures from sheep to crickets, in folio plates with floral festoons and turnip embellishments, mark the beginning of the "fourth period." Count is made, however, from his work on general human anatomy. Concerning the Casserian plate chosen by Dr. Frank to replace an immodest selection in Choulant, Dr. Garrison writes as follows:

It represents an eviscerated female figure, of lovely proportions, apparently floating in mid-air, in the rapt, ecstatic attitude of some transfiguration scene of Raphael or Corregio. In sheer beauty, this figure is comparable with the robust goddesses in the Aurora Fresco of Guido Reni in the Rospigliosi Palace at Rome.

A comely woman, surely, but one attached to earth though her feet are below the limit of the picture! On the whole we prefer the description of these plates by Holmes, written with his poetic license and abandon:

In the giant folio of Spigelius lovely ladies display their viscera with a coquettish grace implying that it is rather a pleasure than otherwise to show the lace-like omentum, and hold up their appendices epiploicæ as if they were saying, "these are our jewels."

<sup>1</sup> Dr. Frank Baker, in the Johns Hopkins Hospital *Bulletin*, Vol. XX., 1909, p. 332.

In Chirurgeon Browne's "Compleat Treatise of the Muscles," 1681, which is not mentioned by Frank or Choulant, these same plates appear, strangely metamorphosed. Dissected gentlemen, wearing wigs of the period, are placed like dancing statues on absurd pedestals, and one lacerated creature has been transferred from the bare ground to a bed.

Much graver omissions are inevitable in a book of such wide scope, but it is thankless to refer to them in view of all that the authors have accomplished. It is a pleasure to see a reproduction of Wirsung's very rare first picture of the pancreatic duct, even though it probably has suffered much in reduction and printing. This, we believe, is the only figure of an original plate illustrating an important anatomical discovery which the volume contains.

The three appendices introduced in this edition are a fragmentary treatment of Chinese anatomy by Choulant, an interesting treatise on sculpture and painting as modes of anatomical illustration by Drs. Garrison and Streeter, and ten pages by Garrison, chiefly an annotated list of books, concerning anatomical illustration since the time of Choulant.

The whole volume is designed as a memorial of Dr. Mortimer Frank, who died at the early age of forty-four—a kindly, modest and able student of medical history whose work is of permanent value.

F. T. LEWIS

*Observations on Living Gastropods of New England.* By EDWARD S. MORSE, Peabody Museum. Pp. 1-29, pls. I-IX.

There are so few papers describing and figuring even the external features of the animals of mollusks, that all students and lovers of this group will hail with pleasure the paper whose title is given above. It is a companion piece to the one published two years ago by the same author, "Observations on Living Lamelli-branches of New England." In the present paper 46 species are figured in 118 sketches gathered on 9 plates. The first 22 pages are given to a discussion of the anatomic structures figured, while the last 7 are devoted

to an arraignment of modern nomenclatorial methods.

There is only one criticism that we have found covering the first 22 pages and plates, in fact this has been discovered by Professor Morse himself, as stated in a letter to me by him. This concerns figure 18 which shows an appendage in *Aporrhais occidentalis*. This represents an abnormality and should have been eliminated or designated as such.

Some may criticize the doctor for retaining an ancient nomenclature and may even go so far as to say that had he spent as much time in revision as he did upon the preparation of pages 23 to 29 he might have saved some one else the task of bringing the names up to date and rendered his observations more readily available to the general public. I have gone over the revisional work and shall publish the results in the *Nautilus*. In so doing, I may say that I have been greatly aided in disposing of some of the questions of identity of West Atlantic with East Atlantic species by the anatomic data presented in this paper.

Finally, we would fail did we not remind Professor Morse that he was one of the pioneers who by his careful studies, so long ago, showed that some of the large groups then in use, were complexes requiring the splitting which he fearlessly bestowed upon them. He should not forget the shock delivered to no less a celebrity than the elder Agassiz when he pointed out that Brachiopods were not Mollusks, as heretofore held, but animals more nearly akin to certain worms. These, however, were conclusions based upon structural characters and merited that recognition and welcome which such discoveries will ever find accorded to them. The lamentable nomenclatorial changes are those which are occasioned by preoccupation. I have frequently wished that some organization could be prevailed upon to undertake the preparation of a card catalogue of scientific names, generic and specific, beginning with Linnæus, giving in addition to the name and citation of publication, the family to which a given genus belongs, and the type locality for each species. In the case of secondary combination, a cross reference card should be pre-